

Operating Instructions Manual

2200 Enteral Feeding Pump



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Introduction

The 2200 Enteral Feeding Pump is a time-saving, easy-to-use enteral feeding pump that can be used in the administration of all enteral feeding formulas. Key features of this device include:

Ease of use

Versatility

Rate adjustable in 1 ml/hour increments from 1 to 295 ml.

Dose adjustable in 1 ml increments from 1 to 2000 ml, and in 5 ml increments from 2000 to 9999 ml.

Light weight and portable

The internal battery will operate for 8 hours at a rate of 125 ml/hour.

Ease of maintenance

The fire resistant plastic case and sealed control panel prevent fluid leakage and allow cleaning with any mild soap.

Easily understood alarms

Low Battery, Battery On, Dose Complete, Occlusion/Empty (for detecting empty container or occluded line), and Free Flow (to detect an unwanted free flow condition).

Low occlusion pressure

15 psi maximum occlusion pressure allows for safe use with any enteral feeding tube.

Serviceability

Self-diagnostic mode allows for complete circuitry check with the push of two buttons.

Built in pole clamp

Display of total accumulated volume delivered

Adjustable alarm volume

Dose limit for intermediate feedings

Non-volatile memory

Free flow alarm

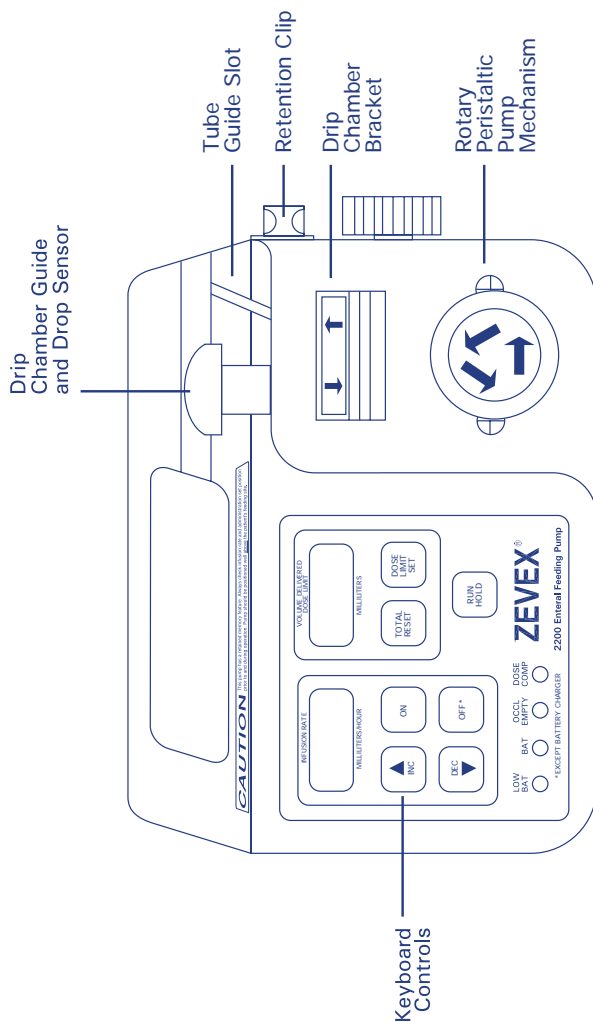
Rotor has an intermittent rotating action

Helps extend usage in the battery mode.

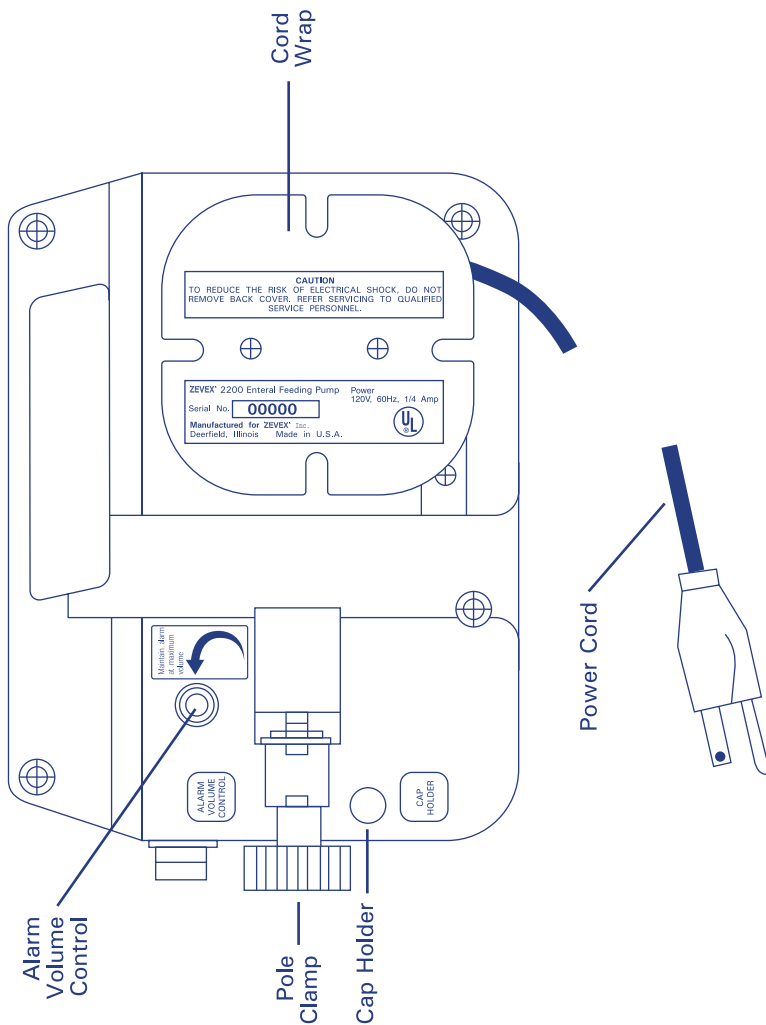
VoluCheck™ accumulated dose feature

Keeps a running total of delivered volume, even when the normal display volume is cleared.

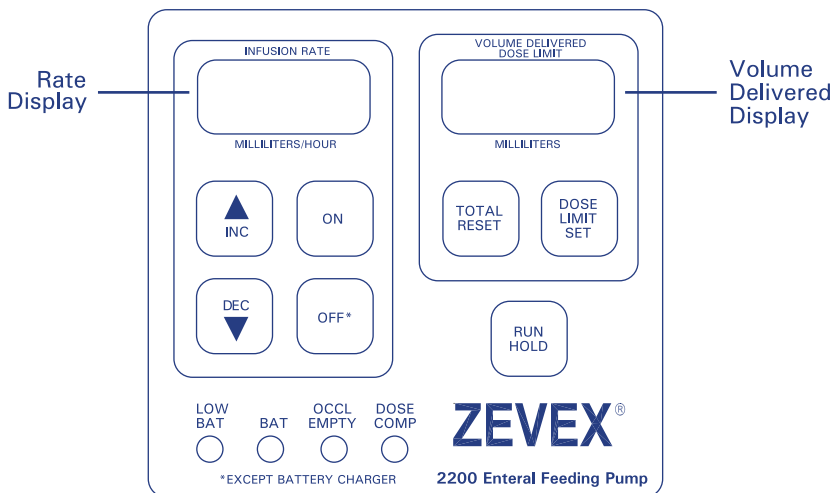
Front Housing Parts Location



Rear Housing Parts Location



Control Panel



DISPLAYS

INFUSION RATE: Shows rate of delivery.

VOLUME DELIVERED: Shows formula volume delivered since this display's memory was last cleared.

BUTTONS

ON: Turns pump on.

OFF: Turns off external power; power to battery charger remains on when pump is connected to a power source.

INC: Increases flow rate when pressed and held. Increases dose after DOSE LIMIT SET button has been pressed.

DEC: Decreases flow rate when pressed and held. Decreases dose after DOSE LIMIT SET button has been pressed.

RUN/HOLD: Alternately starts and stops unit. Silences alarm after condition is corrected and restarts unit when pressed twice.

TOTAL RESET: Resets Volume Delivered display to 0000. TOTAL RESET in Dose Limit mode resets dose limit to 0000. TOTAL RESET in Accumulated Memory mode resets accumulating memory to 0000. TOTAL RESET held for 4 beeps clears all memories except the **VoluCheck™** dose feature.

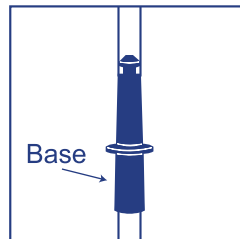
DOSE LIMIT SET: Dose limit button allows the user to set the dose limit. Depressing DOSE LIMIT SET for 3 beeps allows the **VoluCheck™** feature to be displayed. This **VoluCheck™** feature keeps a running total of delivered volume, even when the display volume is cleared. The **VoluCheck™** feature can be cleared by pressing TOTAL RESET only when being viewed.

Operating Instructions

1. Plug the power cord into a 120 Vac, 60 Hz three wire grounded outlet.
2. Press ON. Alarm sounds briefly. VOLUME DELIVERED display flashes.
3. When facing the volume knob, turn the alarm volume on the back of the pump all the way to the left and leave it in the maximum position.
4. Press INC until desired flow rate is displayed.
5. Close set roller clamp, if so equipped.
6. Fill feeding bag to desired level and close cap.
7. Hang bag on IV pole approximately 26" - 30" above pump using the attached hanger on bag.
8. Insert drip chamber into drip chamber bracket on pump.

Operating Instructions (Cont'd)

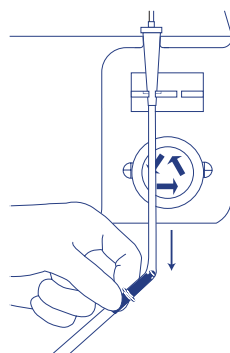
9. Remove protective cover from barbed adapter.
10. To prime set by gravity, open roller clamp, if so equipped, or grasp the in-line occluder by the base and tilt approximately 45 degrees to the right or left, while gently pulling down. Hold this position until air is expelled from the tube. If needed, gently squeeze bag at the same time to start fluid flow. Close roller clamp when prime is complete, if so equipped.



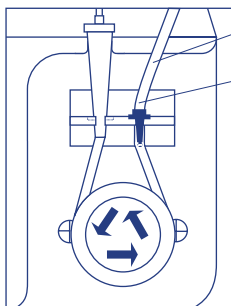
In-line occluder

Note: Do not fill the drip chamber above the fill line.

11. Carefully stretch silicone tubing around pump rotor and fully seat in-line occluder or retainer into the bracket. Pull tubing into tubing guide and through the side retention clip. Close clip with tubing in place.



12. Attach set to feeding tube.
13. To set dose limit, press DOSE LIMIT SET and then press INC or DEC. If dose limit is not used, pump will run until container is empty or pump is turned off.
14. Open delivery set roller clamp, if so equipped.



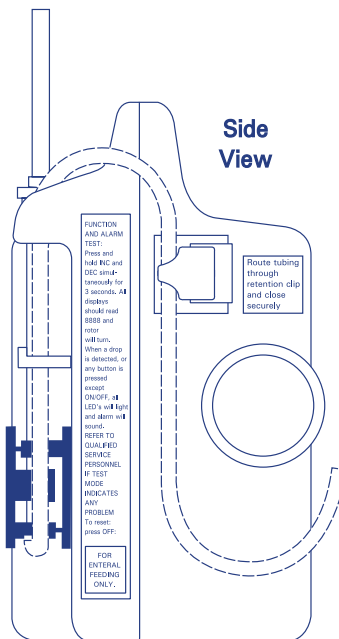
Press tubing into tubing guide slot.

Insert and fully seat in-line occluder flange into pump bracket.

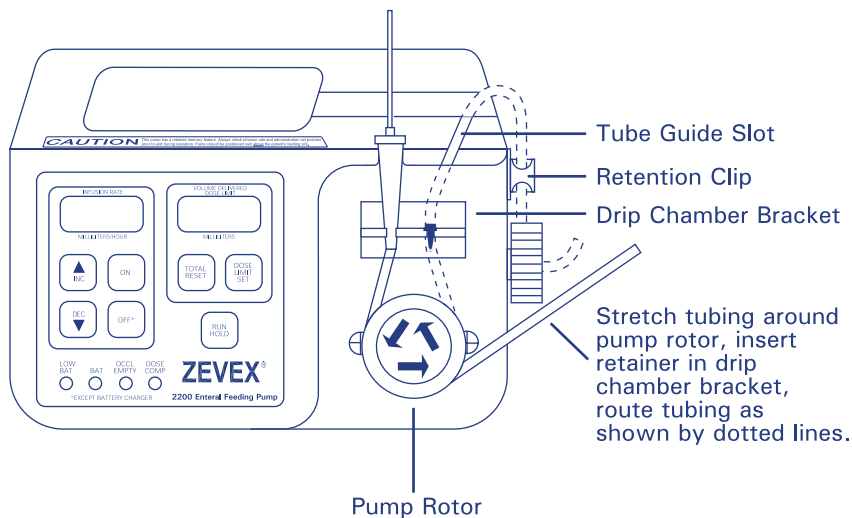
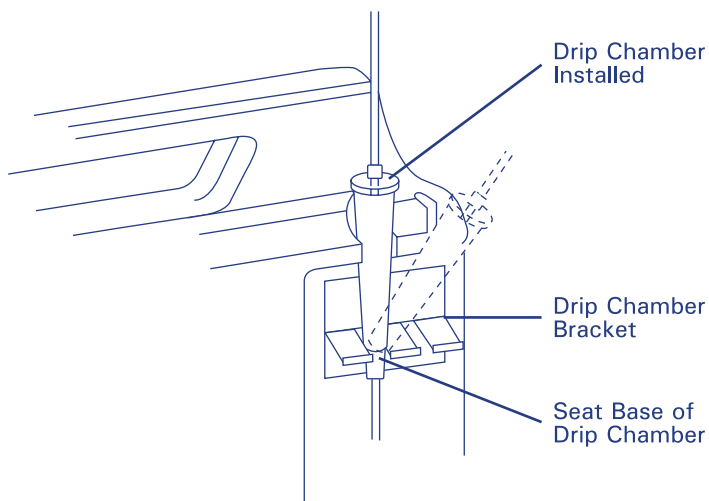
Operating Instructions (Cont'd)

15. Press RUN/HOLD to begin feeding.
16. To change rate or to clear volume delivered display, first place pump on hold by pressing RUN/HOLD. If INC or DEC, or TOTAL RESET is pressed with pump not in the hold mode, an audible alarm will sound.
17. To turn the pump off at any time, press OFF.

Note: If the delivery set has a roller clamp, maintain the roller clamp in a fully closed position whenever the pump is not in operation and when manipulating the administration set or the feeding tube to prevent free flow.



CAUTION: This pump has a memory retention feature. Always check infusion rate and administration set position prior to and during operation. Pump should be positioned well above the patient's feeding site.



Indicators and Alarms

BAT: When operating on battery power, this indicator light is lit. No audible alarm will sound. The pump should be left plugged into an AC outlet whenever possible.

LOW BAT: When operating on battery, this indicator lights up to 15 minutes before the battery runs down and the pump stops. After 15 minutes, this light will flash, an alarm will sound, and the pump will stop. When the LOW BAT light comes on, plug the pump into an AC outlet to continue normal feeding and recharge the battery. It is advisable not to run down the battery completely.

OCCL/EMPTY: When the pump is running, this alarm is activated if:

- the feeding container is empty,
- an occlusion has stopped delivery,
- the pump is left on HOLD for more than 2-1/2 minutes,
- the drip chamber is over filled,
- the drip chamber walls are coated with formula,
- sensors in the drip chamber guide need cleaning, or
- the drip chamber is improperly placed.

Pressing the RUN/HOLD button after an alarm condition is corrected will cancel the alarm and return the pump to hold mode.

RATE CHANGE: This unit will beep if INC, DEC, or TOTAL RESET is pressed while it is running.

DOSE COMP: The alarm sounds when the amount of formula delivered reaches the dose limit set.

FrE FLO: This alarm is activated any time the silicone tubing is not on the rotor while the pump is running, and is intended to alert the user to possible overfeeding.

Alarm should be set and maintained at maximum volume. When facing the volume knob on the back of the pump, turn the knob all the way to the left for maximum volume.

Precautions

- To ensure optimal delivery performance, the pump should be positioned 1 to 3 feet above the level of the patient's feeding site.
- Always verify formula infusion rate prior to feeding.
- Always confirm proper administration set and feeding tube position prior to and during operation. Failure to do so may result in vomiting and/or aspiration.
- Always confirm that the alarm is turned up to its maximum volume.
- Use only ZEVEX® disposable sets to ensure proper fluid delivery.
- If delivery set has a roller clamp, maintain the roller clamp in a fully closed position whenever the pump is not in operation and when manipulating the administration set or feeding tube.
- Do not use the enteral feeding pump for the delivery of non-enteral solutions. Serious injury may result.
- To avoid electrical shock, never clean the pump with the charger plugged in or the pump on. Never immerse the pump in liquid.

CAUTION: *Federal (USA) law restricts this device to sale by or on order of a physician. Failure to follow operating instructions properly may result in serious injury or death.*

Maintenance

CLEANING AND DISINFECTING THE PUMP

- DO NOT AUTOCLAVE AND DO NOT USE STERILIZING SOLUTIONS.
- DO NOT IMMERSE PUMP IN CLEANING SOLUTIONS.
- PROLONGED EXPOSURE TO ALCOHOL, HOUSEHOLD DETERGENT, OR STRONG CLEANERS COULD RESULT IN DAMAGE TO THE PUMP HOUSING AND KEYPAD.
- ALWAYS DISCONNECT THE PUMP FROM THE AC OUTLET BEFORE CLEANING TO AVOID ELECTRICAL SHOCK.

Using a cloth or sponge, clean the pump housing and rollers with warm soapy water. Clean the drop sensor parts with soft cotton swabs and isopropyl alcohol.

When a pump has come in contact with an infectious disease, clean the same way as above, but instead of using soapy water, use isopropyl alcohol or a disinfectant safe for plastics. Do not use any disinfectants that contain any kind of phenol; the plastic absorbs the phenol.

SELF TEST

The major functions of the pump may be tested by pressing the ON button and then first pushing INC and then DEC and simultaneously holding both buttons for 3 seconds. The volume delivered and rate displays should show all eights and the pump rotor should turn. To test the alarms, press DOSE LIMIT SET, INC, DEC, TOTAL RESET, or RUN/HOLD. When any of these keys are pressed or the drop sensor detects a drop, all alarm lights should light, the alarm should sound, and the rotor should halt momentarily. Any failure indicates that a service check should be performed. See Service section for instructions on where to call to send the pump. Turn the pump off to exit self test.

Troubleshooting Guide

The 2200 Enteral Feeding Pump is a reliable, electromechanical device. As with any electromechanical device, problems may occur. The following tips will help you correct minor problems.

SITUATION	POSSIBLE CAUSE	SOLUTION
LOW BAT alarm activated.	Battery charge is below performance level.	Plug cord into AC outlet.
OCCL/EMPTY alarm activated.	Feeding container is empty	Replace or refill feeding container.
	Occlusion is restricting flow.	Find point of occlusion: kinked tubing or closed roller clamp in pump set; feeding tube; container, and correct.
	Drip chamber walls coated with formula.	Replace pump set.
	Drip chamber not properly placed in pump.	Review operating instructions and position properly.
	Too much fluid in drip chamber.	Replace pump set.
	Drop sensors need cleaning.	Clean with cotton swab dampened with isopropyl alcohol.
	Pump is on hold for more than 2-1/2 minutes.	Press RUN/HOLD button to return to hold mode.

Troubleshooting Guide (Cont'd)

SITUATION	POSSIBLE CAUSE	SOLUTION
Rate change alarm activated.	INC, DEC, and TOTAL RESET may only be pressed when pump is on hold.	Press RUN/HOLD button once to stop pump. Change rate. Press RUN/HOLD to restart pump.
Dose complete alarm activated.	Pump has delivered preset volume.	Press total reset. Press RUN/HOLD. If additional volume is needed, pump will operate until dose is completed again.
Free flow alarm activated.	Pump set has become dislodged.	Press RUN/HOLD button once to stop pump. Correct set placement on rotor.
	Drip chamber walls coated with formula.	Replace pump set.

Specifications

TYPE OF DEVICE:	Volumetric enteral feeding pump
MECHANISM:	Rotary peristaltic
OPERATING RANGE:	1-295 ml/hour in 1 ml/hour increments
DOSE LIMIT:	1-2000 ml in 1 ml increments 2000-9999 ml in 5 ml increments
DOSE ACCURACY:	+/-10% of selected flow rate
OCCCLUSION PRESSURE:	Does not exceed 15 psi
BATTERY:	<ul style="list-style-type: none">• Sealed lead acid.• Rechargeable.• Automatically recharges when connected to an AC outlet. Recharge time is 12 hours complete discharge to full recharge.• Operating time 8 hours at 125 ml/hr.
DIMENSIONS:	7.38" H x 9.01" W x 5.06" D
WEIGHT:	5.6 pounds
CASE MATERIAL:	Fire resistant plastic
POWER EQUIPMENT:	120 VAC, 250 ma AC, 60 Hz
OPERATING TEMPERATURE RANGE:	50°F to 104°F (10°C to 40°C)
OPERATING HUMIDITY RANGE:	30 to 75% non-condensing
*TEMPORARY SHIPPING AND STORAGE TEMPERATURE RANGE:	-40°F to 158°F (-40°C to 70°C)
*TEMPORARY SHIPPING AND STORAGE HUMIDITY RANGE:	10 to 95% non-condensing
MAXIMUM STORAGE PERIOD BETWEEN USAGES:	270 days**

* If stored longer than 30 days at temperature extremes the internal battery may be compromised and may need to be replaced.

** If this length is exceeded during storage in a warehouse or at a care facility, it may be necessary to replace the internal back up battery.

Service

This device contains no user serviceable parts. In the event the device fails to operate properly return it to ZEVEX for service.

For service call: 800-970-2337 or outside the U.S.A. call: 801-264-1001

Accessories

ZEVEX® offers a complete line of enteral nutrition delivery products for use with the 2200 Enteral Pump. For further information, contact Therapeutics Products Customer Service at 1-800-970-2337.

Warranty

Solely for the benefit of the original buyer, ZEVEX® INCORPORATED ("ZEVEX®"), warrants all new 2200 products of its manufacture to be free from defects in material and workmanship, and will replace or repair, F.O.B., at its factory in Salt Lake City, Utah, USA or other location designated by ZEVEX®, any 2200 products returned to it within twelve (12) months of original purchase by the buyer. Such repair or replacement shall be free of charge.

ZEVEX® warrants to the original buyer, all repaired or replaced products to be free from defects in material and workmanship and will replace or repair such products F.O.B., at its factory in Salt Lake City, Utah, USA or other location designated by ZEVEX®. Such repair or replacement shall carry a warranty of ninety (90) days from the date of repair or replacement or the balance of the new product warranty as described above, whichever is greater.

This Warranty applies to all 2200 products manufactured by ZEVEX® and is the ONLY WARRANTY GIVEN FOR THE SALE OF PRODUCTS OR SERVICES. NO WARRANTIES IMPLIED IN LAW, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, SHALL APPLY. ZEVEX® WILL BE LIABLE, IN ANY EVENT, ONLY FOR THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, BUT NOT FOR ANY CONSEQUENTIAL DAMAGES.

This Warranty may not be modified, amended or otherwise changed, except by a written document properly executed by a corporate officer of ZEVEX®.

ZEVEX®, Inc. voids the warranty if the 2200 pump is opened or tampered with in any way without prior authorization from ZEVEX®, Inc.

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